

O I P E

Docket No.: 49657-742

**PATENT**

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TRADEMARK OFFICE

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Re Application of	:	Customer Number: 20277
Katsunori ITOU, et al.	:	Confirmation Number: 4615
Serial No.: 09/582,982	:	Group Art Unit: 1742
Filed: July 10, 2000	:	Examiner: H. Wilkins, III
For: ANTIFRICTION BEARING PART FOR HIGH TEMPERATURE	:	

**REQUEST FOR RECONSIDERATION**

Mail Stop Non-Fee Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Reconsideration of the rejections imposed in the Office Action dated October 10, 2003 is solicited in light of the following Remarks.

REMARKS

**Claims 1 and 2 were rejected under 35 U.S.C. §103 for obviousness predicated upon Adachi et al. in view of Ochi et al.**

In the statement of the rejection, the Examiner referred to steel no. 6 (Table 1) of Adachi et al., and **admitted** that the silicon content of the disclosed steel (0.42%) differs from that recited in independent claim 1 (at least 0.5% and not more than 3%). Ignoring this difference, the Examiner announced, without any supporting objective evidence, that the disclosed silicon content is sufficiently close to that claimed to ignore it. In an attempt to justify this clear legal error in ignoring a claim limitation, the Examiner asserted that one having ordinary skill in the art would have expected the disclosed steel to have the same properties as that claimed. Further, the Examiner stated that one having ordinary skill in the art would have recognized that the disclosed steel contains antifriction properties, referring to Ochi et al. This rejection is traversed as clearly legally erroneous.

The Examiner is without his jurisdiction to **ignore or dismiss** the claim limitation requiring at least 0.5 wt% silicon. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988); *In re Miller*, 441 F.2d 689, 169 USPQ 597 (CCPA 1971); *In re Wilson*, 424 F.2d 1382, 165 USPQ 494 (CCPA 1970). Indeed, the Court of Appeals for the Federal Circuit has specifically held that even so called minor differences between a claimed invention and the prior art must be evaluated with respect to the fact-based motivational element. The Examiner's attention is invited to *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 15 USPQ2d 1321 (Fed. Cir. 1990). See, also, *In re Lange*, 644 F.2d 856, 209 USPQ 288 (CCPA 1981).

**The Minimum Limitation on Silicon of 0.5 wt% is Significant.**

The Examiner's determination that the admitted difference in silicon content between the claimed invention and prior art is not significant is not only devoid of any factual basis but is clearly **wrong**. Indeed, the Examiner's own reference to Adachi et al. discloses the significance of the 0.5 wt% silicon limitation. As previously argued in the response submitted August 20, 2003, Adachi et al. disclose that a silicon content of 0.5% or more results in saturation with an attendant significant **degradation** of machineability, cold-workability and hot-workability. The significance of the 0.5 wt% silicon limitation should also be apparent from the reference to Mitamura et al. (U.S. Patent No. 5,989,694) cited in the Information Disclosure Statement submitted concurrently herewith. As taught by Mitamura et al., if the silicon content is less than 0.5%, high temperature hardness is reduced. See, also, Table 1 of Mitamura et al., material E vis-à-vis material L, evincing the significance of a difference even between 0.46 wt% silicon and 0.53 wt% silicon.

Applicants would stress that the present invention is directed to a rolling bearing for high temperature service and, hence, requires heat resistance. Unlike Adachi et al., Applicants found that the saturation point of the heat-resistant effect is at 3%, **not at less than 0.5% as specifically taught by Adachi et al.** Thus, the present invention proceeds **against** the teachings of the primary reference to Adachi et al.

In the face of the above hard evidence of record, the Examiner's dismissal of a clear and significant difference between the claimed invention and the prior art, which the prior art says is significant, and is functionally significant, constitutes **clear legal error**. *Northern Telecom, Inc. v. Datapoint Corp., supra.; Uniroyal, Inc. v. Rudkin-Wiley Corp., supra., In re Lange, supra.*

### Evidence of Nonobviousness

It is well settled that a **teaching away** from a claimed invention constitutes evidence of **nonobviousness**. *In re Bell*, 991 F.2d 781, 26 USPQ2d 1529 (Fed. Cir. 1993); *Specialty Composites v. Cabot Corp.*, 845 F.2d 981, 6 USPQ2d 1601 (Fed. Cir. 1988); *In re Hedges*, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986); *In re Marshall*, 578 F.2d 301, 198 USPQ 344 (CCPA 1978). As previously pointed out, the Examiner's primary reference to Adachi et al. **teach away** from a silicon content of 0.5% or more. This expressed **teaching away** from the claimed invention constitutes clear evidence of **nonobviousness**. It is legal error for the Examiner to ignore any evidence of nonobviousness, including a clear teaching away from a claimed invention. *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 57 USPQ2d 1161 (Fed. Cir. 2000); *Stratoflex Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983).

The Examiner requested evidence of unexpected results. Firstly, there is no requirement for Applicants to proffer any evidence of nonobviousness until such time that the Examiner established, a *prima facie* case of obviousness. This the Examiner has **not** done. *In re Mayne*, 104 F.3d 1339, 41 USPQ2d 1451 (Fed. Cir. 1997); *In re Deuel*, 51 F.3d 1552, 34 USPQ2d 1210 (Fed. Cir. 1995); *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). At any rate, the significance of the 0.5 wt% limitation is disclosed by the Examiner's own reference to Adachi et al. The Examiner's request for unexpected results, therefore, is clearly without legal justification and ignores the facts of this case.

The secondary reference to Ochi et al. does not cure the above argued deficiencies of Adachi et al. Significantly, the Examiner does not even suggest that Ochi et al. would have led one having ordinary skill in the art to alter the composition of Adachi et al.

### **Conclusion**

Based upon the foregoing, it should be apparent that a *prima facie* basis to deny patentability to the claimed invention has not been established for lack of the requisite factual basis and the complete absence of any fact-based motivation. *In re Lee*, 237 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002). Moreover, based upon the **clear teaching** away from the claimed invention by the Examiner's reference to Adachi et al., the conclusion appears inescapable that one having ordinary skill in the art would **not** have found the claimed invention **as a whole** obvious within the meaning of 35 U.S.C. §103. *In re Piasecki*, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984).

Applicants, therefore, submit that the imposed rejection of claims 1 and 2 under 35 U.S.C. §103 for obviousness predicated upon Adachi et al. in view of Ochi et al. is not factually or legally viable and, hence, solicit withdrawal thereof.

**Claims 1 and 2 were rejected under 35 U.S.C. §103 for obviousness predicated upon Takata et al. in view of Ochi et al., the acknowledged prior art and “High Carbon Chromium Bearing Steels” (JIS).**

In response to previously advanced arguments, the Examiner asserted that Ochi et al. teach that adding nickel would increase hardness, thereby overcoming the problems associated with SUJ2. This rejection is traversed.

As argued in the February 12, 2003 Appeal Brief and in the responsive Amendment submitted August 20, 2003, the Examiner **failed** to provide any **factual** evidence to support the conclusion that one having ordinary skill in the art out in the real world would have recognized that the steels of Takata et al. and Ochi et al., and the SUJ2 steel selected by the Examiner from JIS, are **suitable for high temperature use**. This conspicuous factual vacancy is related to the **particular problem** addressed and solved by the claimed invention. Applicants **again** stress that the Examiner committed **clear legal error** in ignoring the **problem** addressed and solved by the claimed invention, because it is a **potent indicum of nonobviousness**. See, for example, *North American Vaccine, Inc. v. American Cyanamid Co.*, 7 F.3d 1571, 28 USPQ2d 1333 (Fed. Cir. 1993); *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 15 USPQ2d 1321 (Fed. Cir. 1990); *In re Newell*, 891 F.2d 899, 13 USPQ2d 1248 (Fed. Cir. 1989); *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 7 USPQ2d 1315 (Fed. Cir. 1988); *In re Nomiya*, 509 F.2d 566, 184 USPQ 607 (CCPA 1975); *In re Rothermel*, 276 F.2d 393, 125 USPQ 328 (CCPA 1960).

As previously argued, the SUJ2 steel identified by the Examiner was **known to have an unsatisfactory service life under a load**. The Examiner improperly ignores this fact. Both Takada et al. and Ochi et al. address the problem of **oxygen** inclusions and provide a material designed for a longer life under a high load. **But the known high temperature problem associate with SUJ2 was not solved**. Again, this is ignored by the Examiner.

The **problem** with SUJ2 steel was that it must be heat treated at a high temperature temperaturing for dimensional stability which **disadvantageously reduces surface hardness** and leads to **decomposition** of the retained austenite on the surface. The reduced hardness

decreases the rolling contact fatigue life of the roller bearing, and the decreased amount of austenite does not relieve stress concentration in an environment contaminated by foreign matter.

Because the high temperature service required tempering at a high temperature which would degrade the surface hardeners and significantly shorten the life of SUJ2, SUJ2 **could not have both the dimensional stability and surface hardness at a high temperature at the same time**. Hence, SUJ2 conventionally sacrificed durability.

As previously argued, it is **legally erroneous** to ignore any evidence of **nonobviousness**. *Ruiz v. A.B. Chance Co., supra.*; *Stratoflex Inc. v. Aeroquip Corp., supra.* Evidence was introduced and discussed at page 7 of the August 20, 2003 responsive Amendment. The Examiner **improperly ignored** such evidence, thereby committing **legal error**. Again, the Examiner's attention is invited to Japanese Patent No. 2870831 which was filed on July 31, 1989 by NSK Ltd., wherein the following relevant disclosure appears:

Conventionally, in order to preferentially solve the problem of the dimension stability of the rolling bearing for a semi-high temperature use, a high carbon chromium rolling steel (SUJ2) has been subjected to high temperature temper. A high-temperature tempered SUJ2 product has been provided with an improved dimension stability obtained by transforming the remaining austenite into martensite in advance. ...Although the high-temperature tempered SUJ2 product described above has the improved dimension stability, the high-temperature tempering degrades the hardness thereby shortening a lifetime due to plastic deformation and the like. In addition, because of insufficient anti-friction, the bearing may suffer friction under the boundary lubrication when used at a high temperature.

The above disclosure corroborates Applicants' position that it was well known in the art that SUJ2 is an **inappropriate bearing steel for high temperature use**, because conventional attempts were unable to produce the steel with **simultaneous high temperature dimensional stability and surface hardness**. Not one single reference cited by the Examiner suggests any solution to that problem, i.e., simultaneous high temperature dimensional stability and surface

hardness. The fact that the applied prior art was **unable** to solve this problem, i.e., simultaneously high temperature dimensional stability and surface hardness, is a **potent indicum of nonobviousness** which the Examiner **must consider**. *North American Vaccine, Inc. v. American Cyanamid Co., supra; Northern Telecom, Inc. v. Datapoint Corp., supra; In re Newell, supra; Diversitech Corp. v. Century Steps, Inc., supra; In re Nomiya, supra; In re Rothermel, supra.*

The Examiner's assertion that SUJ2 is a bearing steel for high temperature service is, therefore, **technological inaccurate**. Moreover, it matters not one whit whether the steels disclosed by Takata et al. and Ochi et al. are similar to SUJ2. **None of them are suitable for high temperature.**

As previously pointed out, the absence of sufficient facts in this case is inextricably linked to the particular problem addressed and solved by the claimed invention, i.e., simultaneous high temperature dimensionally stability and surface hardness. Applicants have addressed and solved that problem while those having ordinary skill in the art **failed**. Under such circumstances, the problem addressed and solved by the claimed invention constitutes a **potent indicum of nonobviousness**. *Jones v. Hardy, 727 F.2d 1524, 220 USPQ 1021 (Fed. Cir. 1984).*

In **summary**, as a **factual** manner, neither the primary reference to Takata et al. or the secondary reference to Ochi et al. discloses or suggests a bearing steel suitable for high temperature service. Moreover, one having ordinary skill in the art would have recognized the shortcomings of SUJ2 as a high temperature bearing steel, because it was recognized that both high temperature dimensional stability and surface hardness could **not** be achieved. Thus, it can



**not** be said that one having ordinary skill in the art would have been realistically motivated to entwine all of the applied references as knitted by the Examiner with a **reasonable expectation of success**. *Velandier v. Garner*, \_\_F.3d\_\_, 68 USPQ 2d 1769 (Fed. Cir. 2003); *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). *In re Dow chem.. Co.*, 837 F.2d 469, 5 USPQ2d 1529 (Fed. Cir. 1988). Moreover, upon giving due consideration to Applicants' solution of the simultaneous high temperature dimensional stability and surface hardness problem, a potent indicum of **nonobviousness** particularly since the prior art failed to solve that problem, the conclusion appears inescapable that one having ordinary skill in the art would **not** have found the claimed invention **as a whole** obvious with the meaning of 35 U.S.C. §103. *Jones v. Hardy*, *supra*.

Applicants, therefore, submit that the imposed rejection of claims 1 and 2 under 35 U.S.C. §103 for obviousness predicated upon Takata in view of Ochi et al., the acknowledged prior art and JIS is not factually or legally viable and, hence, solicit withdrawal thereof.

Based upon the foregoing, it should be apparent that the imposed rejections have been overcome and that claims 1 and 2 are in clear condition for immediate allowance. Favorable consideration is, therefore, respectfully solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

09/582,982

Respectfully submitted,

MCDERMOTT, WILL & EMERY

A handwritten signature in black ink, appearing to read 'A. J. Steiner', written over the printed name.

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